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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
FITZGERALD, JOHN P

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/663,141	KOLOSOV ET AL.
	Examiner	**Art Unit**
	John P Fitzgerald	2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/304*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Namely, claim 12 recites in part: "wherein the force is torque used to move the one or more probes......" A force (F) applied to the probe is not equivalent to torque (τ), which is a resultant of the cross product of force (F) applied and distance (r). Typically, the equation for calculating toque is written: $\tau = \bar{r} \times \bar{F}$. Therefore, the claim is rendered indefinite.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,679,130 to Hajduk et al. Although the conflicting claims are not identical, they are not patentably distinct from each other

because Hajduk et al. discloses an apparatus for measuring the physical properties (i.e. rheological properties) of a plurality (i.e. library) of samples providing a moveable sample holder (i.e. supported substrate) via an actuator; probes for mechanically perturbing the samples (i.e. contacting the samples with a contact portion of one or more probes); force sensors for monitoring the response of the material samples to mechanical perturbation by the probes (i.e. monitoring a parameter selected from power or force) and thus obviously relating the measured force parameter to a physical/rheological property of each of the samples and employing the method steps recited in claim 1, employing the apparatus disclosed in claim 1 of US 6,679,130 to Hajduk et al.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

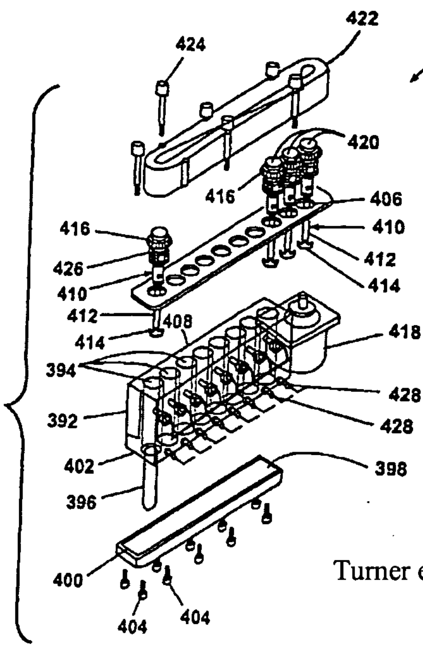
6. Claims 1-3, 5, 12, 14-18 and 21 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,821,407 to Sekiguchi et al. Sekiguchi et al. disclose a method of screening a library/plurality of materials/samples (Figs. 1-13) for a rheological property by providing the materials supported in wells (31A, B, C) on a substrate (30) (Fig. 2); contacting each sample of the library/plurality of materials with a contact portion of one more probes/rotors (7); moving (rotationally) via motors (note: servo motors; compumotors and similar motors are all known equivalents for providing rotational motion) (as recited in claim 14) the contact portion of the one more probes' contact portions relative to each sample of the library/plurality of samples;

monitoring a parameter of torque via rotation phase difference at constant rotation force/torque/power (Sekiguchi et al.: col. 9, lines 15-24) (as recited in claims 1-3 and 12) during the moving of the contact portion of the probes in a serially manner (as recited in claim 21); and relating the parameter to a rheological property, specifically viscosity (as recited in claims 1 and 5) (Sekiguchi et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics, food formulations, personal care formulations and coating formulations (Sekiguchi et al.: col. 1, lines 14-23) (as recited in claims 15-18).

7. Claims 1-3, 5, 6, 9, 10, 12-15 and 20-22 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,306,658 to Turner et al. Turner et al. disclose a method of screening a library of material samples (Figs. 1-52) for a rheological property by providing the material samples supported in wells (104, 394) on a substrate (106, 136); contacting each sample of the library of material samples with a contact portion (1316) of one more plastic (i.e. disposable) (as recited in claim 6) probes (1310) (Turner et al. col. 5, lines 1-4); moving (rotationally) via motors (note: servo motors; compumotors and similar motors are all known equivalents for providing controlled rotational motion) (as recited in claim 14) the contact portion of the one more probes' contact portions relative to each sample of the library of samples; the utilization a waveform generator (as recited in claim 13) (Turner: et al. col. 18, lines 61-62); monitoring, over time (note: data acquisition systems inherently sample at a chosen desired rate/speed determined by a user) (as recited in claim 10) a parameter of torque via rotation phase difference at constant rotation force/torque/power (Turner et al.: col. 21, lines 7-35) (as recited in claims 1-3, 10 and 12) during the moving of the contact portion of the probes in a serially manner (Fig. 17) (as recited in claim 21); and relating the parameter to a rheological property, specifically viscosity

(as recited in claims 1 and 5) (Turner et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics (Turner et al.: col. 2, line 10) (as recited in claim 15) and monitoring more than one sample simultaneously (Fig. 10) (Turner et al. col. 15, lines 5-40) (as recited in claim 20); and the dispensing the library of samples and means of controlling the temperature of the samples (Turner et al.: col. 8, line 41 to col. 10, line 67) (as recited in claim 22).

Fig. 10



Turner et al.

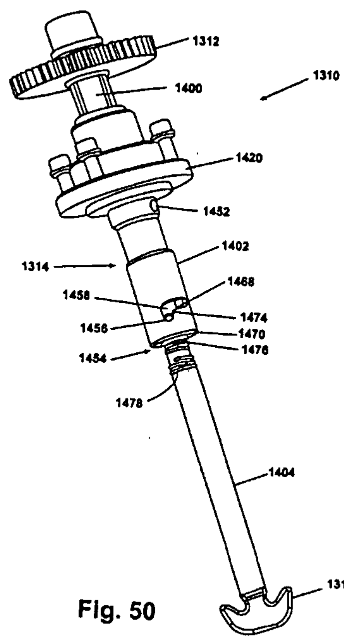


Fig. 50

8. Claims 26, 28, 29 and 32-39 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,306,658 to Turner et al. Turner et al. disclose a method of screening a library of at least 16 samples (note: Fig. 1 indicates a 5x5 matrix (25) samples) of material samples (Figs. 1-52) for a rheological property by providing the material samples supported in wells (104, 394) on a substrate (106, 136); contacting each sample of the library of material samples with a contact portion (1316) of one more plastic (i.e. disposable) (as recited in claim 29) probes (1310); rotating (at predetermined rates of rotation via circuitry including a lock-in amplifier (Turner et al.: col. 21, line 62 to col. 22, line54) (as recited in claims 34 and 35)) via motors (note: servo

motors; compumotors and similar motors are all known equivalents for providing controlled rotational motion) (as recited in claim 32) the contact portion of the one more probes' contact portions relative to each sample of the library of samples in an oscillatory manner relative to each sample of the library of samples according to electrical signals produced by a waveform generator (Turner: et al. col. 18, lines 61-62); wherein the signal from the waveform generator is a sine or cosine wave (Turner et al.: col. 18, lines 47-59) (as recited in claim 33);monitoring a parameter of torque via rotation phase difference at constant rotation force/torque/power (Turner et al.: col. 21, lines 7-35) (as recited in claim 26) during the moving of the contact portion of the probes in a serially manner (Fig. 17) (as recited in claim 38); and relating the parameter to a rheological property, specifically viscosity (as recited in claims 26 and 28) (Turner et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics (Turner et al.: col. 2, line 10) (as recited in claim 36) and monitoring more than one sample simultaneously (Fig. 10) (Turner et al. col. 15, lines 5-40) (as recited in claim 37) and the dispensing the library of samples and means of controlling the temperature of the samples (Turner et al.: col. 8, line 41 to col. 10, line 67) (as recited in claim 39).

9. Claims 41-45 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,306,658 to Turner et al. Turner et al. disclose a method of screening a library of at least 16 samples (note: Fig. 1 indicates a 5x5 matrix (25) samples) of material samples (Figs. 1-52) for a rheological property by providing the material samples supported in wells (104, 394) on a substrate (106, 136); contacting each sample of the library of material samples with a contact portion (1316) of one more plastic (i.e. disposable) (as recited in claim 45) probes (1310); one or more actuators are attached to an automated system (146) (Fig. 2) moving the actuators and probes selectively

(as recited in claim 41); rotating (at predetermined rates of rotation via circuitry including a lock-in amplifier (Turner et al.: col. 21, line 62 to col. 22, line 54)) via motors (note: servo motors; compumotors and similar motors are all known equivalents for providing controlled rotational motion) (as recited in claim 44) the contact portion of the one more probes' contact portions relative to each sample of the library of samples in an oscillatory manner relative to each sample of the library of samples according to electrical signals produced by a waveform generator (Turner: et al. col. 18, lines 61-62); wherein the signal from the waveform generator is a sine or cosine wave (Turner et al.: col. 18, lines 47-59) (as recited in claims 41 and 43);monitoring a parameter of torque via rotation phase difference at constant rotation force/torque/power (Turner et al.: col. 21, lines 7-35) during the moving of the contact portion of the probes in a serially manner (Fig. 17); and relating the parameter to a rheological property, specifically viscosity (as recited in claim 42) (Turner et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics (Turner et al.: col. 2, line 10) and monitoring more than one sample simultaneously (Fig. 10) (Turner et al. col. 15, lines 5-40).

10. Claims 46, 48 and 51-55 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,306,658 to Turner et al. Turner et al. disclose a method of screening a library of material samples (Figs. 1-52) for a rheological property by providing the material samples supported in wells (104, 394) on a substrate (106, 136); contacting each sample of the library of material samples with a contact portion (1316) of one more probes (1310); one or more actuators are attached to an automated system (146) (Fig. 2) moving the actuators and probes selectively (as recited in claim 46); rotating (at predetermined rates of rotation via circuitry including a lock-in amplifier (Turner et al.: col. 21, line 62 to col. 22, line 54) (as recited in claim 54)) via motors

(note: servo motors; compumotors and similar motors are all known equivalents for providing controlled rotational motion) (as recited in claim 51) the contact portion of the one more probes' contact portions relative to each sample of the library of samples in an oscillatory manner relative to each sample of the library of samples according to electrical signals produced by a waveform generator (Turner: et al. col. 18, lines 61-62); wherein the signal from the waveform generator is a sine or cosine wave (Turner et al.: col. 18, lines 47-59) (as recited in claim 52);monitoring a parameter of torque via rotation phase difference at constant rotation force/torque/power (Turner et al.: col. 21, lines 7-35) during the moving of the contact portion of the probes in a serially manner (Fig. 17); and relating the parameter to a rheological property, specifically viscosity (as recited in claim 48) (Turner et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics (Turner et al.: col. 2, line 10) (as recited in claim 55) and monitoring more than one sample simultaneously (Fig. 10) (Turner et al. col. 15, lines 5-40).

11. Claims 58, 60-62, 65 and 66 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,306,658 to Turner et al. Turner et al. disclose a system for screening a library of material samples (Figs. 1-52) for a rheological property by providing the material samples supported in wells (104, 394) on a substrate (106, 136); contacting each sample of the library of material samples with a contact portion (1316) of one more plastic (i.e. disposable) (as recited in claim 62) probes (1310); one or more actuators are attached to an automated system robotic system (146) using a 3-axis (i.e. X-Y-Z robotic arm as recited in claim 61) translation system (150) (Fig. 2) moving the actuators and probes selectively (as recited in claim 58); rotating (at predetermined rates of rotation via circuitry including a lock-in amplifier (Turner et al.: col. 21, line 62 to col. 22, line 54) (as recited in claim 60)) via motors (note: servo motors; compumotors

and similar motors are all known equivalents for providing controlled rotational motion) (as recited in claim 65) the contact portion of the one more probes' contact portions relative to each sample of the library of samples in an oscillatory manner relative to each sample of the library of samples according to electrical signals produced by a waveform generator (Turner: et al. col. 18, lines 61-62); wherein the signal from the waveform generator is a sine or cosine wave (Turner et al.: col. 18, lines 47-59);monitoring a parameter of torque via a transducer (strain gage, speed sensor, phase lag measurements) at constant rotation force/torque/power (Turner et al.: col. 21, lines 7-35) during the moving of the contact portion of the probes in a serially manner (Fig. 17); and relating the parameter to a rheological property, specifically viscosity (Turner et al.: col. 5, lines 25-50) and wherein the library of samples include polymerics (Turner et al.: col. 2, line 10) and monitoring more than one sample simultaneously (Fig. 10) (Turner et al. col. 15, lines 5-40) and wherein the probes are removably attachable (i.e. selectively attaching, as recited in claim 66) (Turner et al.: col. 4, line 59 to col. 5 line 5).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 7, 8, 30, 31, 49, 50, 63 and 64 rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,306,658 to Turner et al., and in further view of *"Viscosity and Flow Measurement"* by Van Wazer et al. Turner et al. disclose a method and apparatus for screening

a library of sample materials having all of the method steps and elements stated previously.

.Turner et al. do not specifically disclose the contact portions of the probes having a plurality of contact surfaces that are substantially planar relative to the axis of rotation of the probe, or substantially disc shaped. Van Wazer et al. disclose various type of rotating viscometers having a wide variety of probe shapes and contact surfaces, as seen in Figures 2.7, 2.8, 2.9 and 3.17 (see below), as well as various types of probe receiving wells, also having a plurality of planar surfaces. It would have been obvious to one of ordinary skill at the time the invention was made to employ a rotor having a contact portion having any chosen design size, shape, geometry or profile, as taught by Van Wazer et al., modifying the method and apparatus disclosed by Turner et al., thus providing various types shearing surfaces, and thus affecting the shearing rates of the viscometer.

Rotational Viscometry 75

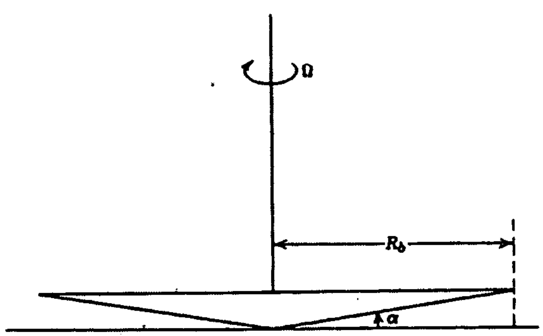


Fig. 2-8. Cone-plate viscometer.

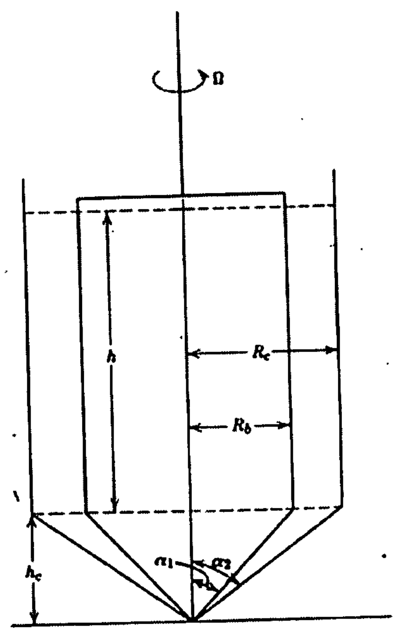


Fig. 2-9. Coni-cylindrical viscometer.

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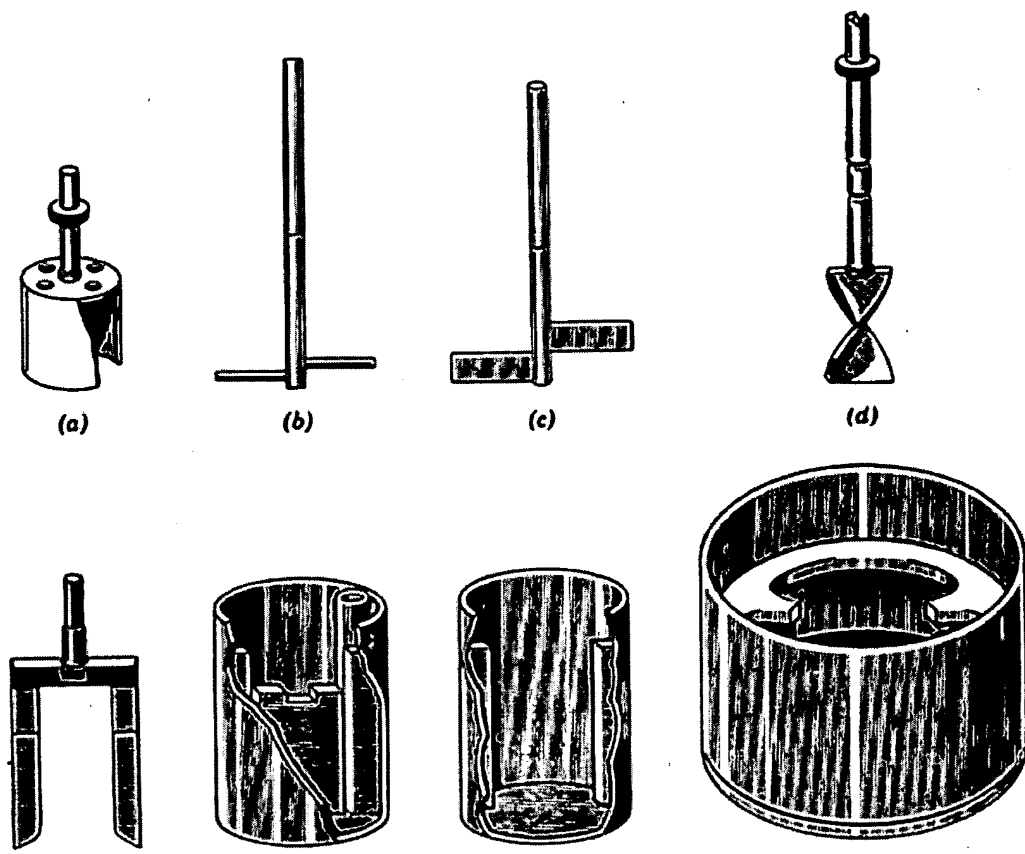

Fig. 3-17. Stormer cups and rotors: (a) hollow rotor; (b–e) paddle rotors; (f) cup with central baffle and thermometer holder; (g) cup without central baffle or holder; and (h) cup holder.

14. Claims 4, 11, 27, 39, 47, 59 and 67 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,306,658 to Turner et al., and in further view of US 5,610,325 to Rajagopal et al. Turner et al. disclose a method and apparatus for screening a library of sample materials having all of the method steps and elements stated previously. Turner et al. do not specifically disclose that the predetermined motion is a rotation a predetermined number of degrees and subsequently a transducer/motion sensor measuring/indicating those number of degrees. Rajagopal et al. discloses a torsional rheometer/viscometer (Figs. 1-10) having a

transducer (22) capable of detecting degree cycles of rotation in the same direction or through oscillating movement (as recited in claims 11 and 67), thus allowing the material sample forces to be projected in three orthogonal directions and torque; a processor (26) of a computer means/control unit (30, 32) to determine/calculate the rheological properties/viscosities of the material sample as well a performing a comparison to a stored mathematical material model (Fig. 10) (as recited in claims 4, 27, 39, 47 and 59)

15. Claims 4, 23-25, 27, 30, 31, 40, 47, 49, 50, 56, 57, 63 and 64 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,306,658 to Turner et al. Turner et al. further disclose that the monitoring process for each cell may take a seconds per vessel and thus the entire array of samples can be typically made once every few minutes depending upon the number of vessels, the rotation frequency and the desired accuracy (Turner et al.: col. 22, line 64 to col. 23 line 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ any desired monitoring rate, including 10 minutes per sample (as recited in claims 23 and 40) based on desired accuracy and chosen rotational frequency. On a similar line of reasoning, the repetition of sampling, as recited in claims 24 and 56, as well as placing the probe in multiple/various locations within the wells, as recited in claims 25 and 57 are considered a design choice based on the desired results, size of the wells relative to the probe contact portion and the rheological/chemical properties and behavior inherent to the material samples themselves (i.e. if a chemical reaction is taking place, time or shear-rate dependence or hardening, or a sheet of rubber (as recited in claim 19) which might have varying/nonlinear tension/torsioinal characteristics). Rajagopal et al. disclose a torsional rheometer/viscometer (Figs. 1-10) having a transducer (22) capable of detecting degree cycles of rotation in the same

direction or through oscillating movement (as recited in claims , thus allowing the material sample forces to be projected in three orthogonal directions and torque; a processor (26) of a computer means/control unit (30, 32) to determine/calculate the rheological properties/viscosities of the material sample as well a performing a comparison to a stored mathematical material model (Fig. 10) (as recited in claims 4, 27, 39, 47 and 59).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892 form regarding prior art related to the instant invention, including robotic/automated systems for sampling a plurality/library of samples in serial fashion and varius measurement and techniques for sensing rotation/torque/force applied on rotors by the material samples.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fitzgerald whose telephone number is (571) 272-2843. The examiner can normally be reached on Monday-Friday from 7:00 AM to 3:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JF
09/20/2004

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800